

REMARKS/ARGUMENTS

Claim 14 has been amended. Claims 14 and 17 to 29 are pending in the application, of which claims 14, 21, 25 and 29 are the independent claims. Reconsideration and further examination are respectfully requested.

Claim Rejections – 35 USC § 103

Claims 14 and 17-29 were rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,621,723 to Walton et al. (“the ‘723 patent”) further in view of U.S. Patent No. 5,832,387 Bae et al. (“Bae”) and further in view of U.S. Patent No. 5,930,706 to Raith (“Raith”). Reconsideration and withdrawal of these rejections are respectfully requested.

Independent claim 14 is directed to a method for wireless communications. The method comprises receiving, by an apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals, comparing a frame error rate of each of the subchannel signals with a frame error rate threshold, and generating power control messages, based on the comparison, to be used to independently adjust transmit powers of more than one of the plurality of subchannel signals to different levels.

The Examiner contends that the ‘723 patent teaches the feature “receiving, by the apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals” recited in claim 14. See page 2 of the Final Office Action.

Contrary to the Examiner’s contention, the ‘723 patent does not teach or suggest the feature “receiving, by the apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals” recited in claim 14.

Pursuant to 37 CFR §1.132, Applicants submit herewith a Declaration by Jay R. Walton and John Ketchum (“Walton and Ketchum”), the same Jay R. Walton and John Ketchum who are the named inventor of the ‘723 patent.

In their Declaration, Walton and Ketchum state “[w]e strongly disagree with the Examiner’s contention and believe that the ‘723 patent clearly does not teach the feature “receiving, by the apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals” recited in claim 14 of the ‘621 application.”

As Walton and Ketchum explain in their Declaration “[t]he ‘723 patent describes a multiple access network employing multiple channels, each channel associated with a fixed data

rate. Each of the channels is available for remote stations in the network to use. A single remote station selects ONE of the available channels to use (based on the data rate that the remote station elects to employ) and transmits on the selected channel. The remaining channels are available for the other remote stations to use.” This is fully consistent with the explicit text of the ‘723 patent, which discloses that “the mobile may select the reverse packet data channel corresponding to the maximum data rate which the link can support.” (emphasis added). See col. 3, ll. 27-31 of the ‘723 patent.

Walton and Ketchum state that “[a] single remote station that selects ONE channel from among multiple channels available to remote stations in a network and transmits on the selected channel, as described in the ‘723 patent, is clearly and fundamentally distinct from a single remote station that transmits on a reverse link comprising a plurality of subchannels.”

Thus, the remote station of the ‘723 patent determines a data rate that it wishes to employ, selects ONE of the available channels based on the determined data rate and transmits on the selected ONE channel. The ‘723 patent does not teach or suggest that the reverse link signal from a single remote station comprises more than the selected channel.

For at least the reasons given above, Applicants submit that the ‘723 patent clearly does not teach or suggest the feature of receiving from a single remote station a reverse link signal that comprises a plurality of subchannel signals as recited in claim 14.

The Examiner also contends that the ‘723 patent teaches that a combination of channels can be combined for a specific data rate. See page 10 of the Final Office Action stating that the ‘723 patent “teaches that one of eight channels can be used independently on up to eight mobile station or combination of channels can be combined for a specific data rate....”

Contrary to the Examiner’s contention, the ‘723 patent does not teach that a combination of channels can be combined for a specific data rate.

In their Declaration, Walton and Ketchum state “[w]e strongly disagree with the Examiner’s contention that the ‘723 patent teaches that a combination of channels can be combined for a specific data rate.”

Walton and Ketchum state that “[t]he intent of the multiple channels in the ‘723 patent is NOT to have a single remote station transmit on multiple channels, but rather to (1) demarcate different data rates and (2) provide for additional capacity to allow more than one remote station to employ the same data rate without resulting in a catastrophic collision.”

As Walton and Ketchum explain “[t]he ‘723 patent demarcates different data rates by associating each of the multiple channels with one of the data rates. A single remote station selects ONE of the channels based on the data rate that the remote station elects to employ and transmits on the selected channel. This relieves the base station from having to do a blind data rate determination because the base station can determine the data rate that the remote station is employing based on the data rate associated with the channel selected by the remote station.” This is fully consistent with the explicit text of the ‘723 patent, which discloses “[b]y using dedicated channel codes assigned to specific data rates, the reverse channel receivers [do] not have to estimate the channel data rate. This greatly simplifies the processing requirements of the receiver.” See col. 4, ll. 28-31 of the ‘723 patent.

Walton and Ketchum also explain that “[t]he ‘723 patent provides for additional capacity by assigning multiple codes to a channel associated with a particular data rate. This allows more than one remote station to employ the same data rate without causing a catastrophic collision by having each remote station employing the same data rate use a different code assigned to the channel associated with the data rate. The different codes distinguish the remote stations employing the same data rate.” This is fully consistent with the explicit text of the ‘723 patent, which discloses “[w]hen only one code is assigned to support a given data rate channel, the possibility of two or more users attempting to simultaneously use the reverse packet data channel exists. When multiple codes are assigned, this likelihood is reduced at the expense of increased processing requirement.” See col. 3, ll. 39-46 of the ‘723 patent.

Walton and Ketchum state that “[u]nder no circumstance does the ‘723 patent teach a single remote station transmitting on a combination of the multiple channels for a specific data rate. Rather, the ‘723 patent teaches a single remote station selecting ONE of the available channels based on the data rate that the remote station elects to employ and transmitting on the selected channel.”

From the Final Office Action, the Examiner appears to misinterpret the multiple codes assigned to a data rate channel for allowing multiple remote stations to use the same data rate as teaching a single remote station transmitting on multiple channels. See page 10 of the Final Office Action stating “[b]ased upon data rate the mobiles are assigned either a specific channel or channel set....”

As explained by Walton and Ketchum in their Declaration, multiple codes (set of codes) are assigned to a channel for a particular data rate to allow multiple remote stations to employ the same data rate without causing a catastrophic collision. Each remote station employing the same data rate uses a different code assigned to the channel associated with the data rate. Thus, each remote station wishing to employ the same data rate, selects one of the codes from the code set corresponding to that data rate. This is clear from the explicit text of the '723 patent, which discloses "[m]obiles that select a specific data rate are required to use a code from the set which is assigned to that channel." (emphasis added). See col. 3, ll. 33-34 of the '723 patent. Nowhere does the '723 patent teach or suggest a single remote station transmitting on multiple channels.

The Examiner's contention may also be based on a misinterpretation of the disclosure "a corresponding receiver element is assigned to serve a specific channel or channel set" in the '723 patent. See col. 3, ll. 38-39 of the '723 patent. This portion of the '723 patent is clearly talking about a receiver element at the base station (cell site) that serves remote stations using the same data rate. See, e.g., col. 3, ll. 18-19 of the '723 patent. This portion of the '723 patent does not teach a single remote station transmitting on multiple channels.

Therefore, the Examiner's contention that the '723 patent teaches that a combination of channels can be combined for a specific data rate is clearly erroneous.

Walton and Ketchum also state "[n]ot only does the '723 patent not teach the above feature recited in claim 14 of the '621 application, having a single remote station transmits on multiple channels would substantially degrade performance in the packet data scheme employed in the '723 patent. This is because transmitting on multiple channels would require the remote station in the '723 patent to divide its total transmit power between the multiple channels. In doing so, the packet detection probability for each channel would be substantially reduced due to reduced received power and increased interference for each channel." Refer to the Declaration for additional details.

Thus, not only does the '723 patent not teach the above feature of claim 14, but having a signal remote station transmits on multiple channels would substantially degrade performance in the data packet scheme employed in the '723 patent.

For at least the reasons given above, Applicants submit that the '723 patent does not teach or suggest receiving from a single remote station a reverse link signal that comprises a plurality of subchannel signals, as recited in claim 14.

Because the '723 patent fails to teach or suggest receiving a reverse link signal from a single remote station that comprises a plurality of subchannel signals, the '723 patent necessarily fails to teach or suggest generating control messages to be used to independently adjust transmit powers of more than one of the plurality of subchannel signals of the reverse link signal to different levels.

Neither Bae nor Raith are seen to remedy the foregoing deficiencies of the '723 patent for at least the reasons set forth below.

Bae is directed to a power allocation apparatus for a multicarrier transmission system, in which data is transmitted on a transmission channel comprising subchannels having different frequency bands. Bae, col. 1, ll. 7-11, and col. 4, ll. 57-61. The multicarrier transmission system of Bae is used to transmit data for multiple subscribers over a wired line, for example, a copper wired line in an asymmetric digital subscriber line (ADSL) system. Bae, col. 2, ll. 19-39. Bae is not directed to a CDMA system, in which a base station receives a reverse link signal from a remote station.

The purpose of the power allocation apparatus of Bae is to allocate power to the different subchannels in a manner that compensates for efficiency losses of the multicarrier transmission system caused by frequency selective interference. Bae, col. 7, ll. 4-13 and col. 7, l. 66 to col. 8, l. 4 and Fig. 9. Because the subchannels have different frequency bands, the frequency selective interference impacts the signal-to-noise ratios (SNRs) of the subchannels differently. Bae, Fig. 10B and col. 7, ll. 20-24. The power allocation apparatus of Bae compensates the multi-carrier transmission system for frequency selective interference by initially assigning power to subchannels of different frequency bands in proportion to calculated SNRs for the subchannels (Fig. 10B), limiting the power for subchannels within frequency band f_1 to power limit P_1 (Fig. 11A), reassigning remaining power to the other subchannels (Fig. 11B), and limiting the power for subchannels within frequency band f_2 to power limit P_2 (Fig. 11C). Bae, Figs. 10B-11C and col. 7, ll. 30-56. The power limits are dependant on the frequency bands of the subchannels.

Bae does not teach or suggest a base station receiving from a single remote station a reverse link signal comprising a plurality of subchannel signals, and therefore fails to cure the same deficiencies of the '723 patent. By contrast, Bae discloses a multicarrier transmission system that transmits different frequency-band subchannels for multiple subscribers over a wired line. Bae, col. 2, ll. 19-39.

Further, Applicants submit that, contrary to the Examiner's contentions, it would not have been obvious to incorporate the concept of independently adjusting more than one subchannel of Bae into the system of the '723 patent for improved performance. See page 3 of the Final Office Action. As discussed above, Bae teaches that independently adjusting the power of subchannels improves performance by compensating for frequency selective fading of different frequency bands. Since the CDMA system of the '723 patent does not use different frequency bands, and therefore does not suffer from the frequency selective fading of Bae, one skilled in the art would have no reason to expect that incorporating the concept of adjusting more than one subchannel of Bae into the CDMA system of the '723 patent would lead to improved performance of the CMDA system of the '723 patent.

In response to similar arguments made by Applicants in the previous response, the Examiner states that "[t]he examiner respectfully disagrees that applicant argue that because Bae is allocated power to different subchannel in a different manner is relevant because examiner is only bringing in the concept of independent adjustment." See page 11 of the Final Office Action. Applicants respectfully disagree and submit that the manner in which the independent adjustment is used in Bae is relevant. This is because the Examiner contends that one skilled in the art would have been motivated to combine Bae with the '723 patent to improve performance. Bae specifically teaches that its independent adjustment improves performance by compensating for frequency selective fading of different frequency bands. The Examiner has not provided any independent rationale for why one skilled in the art would have expected that combining the concept of independent adjustment of Bae with the CDMA system of the '723 patent would lead to improved performance. The Supreme Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 412, 82 USPQ2d at 1396.

Raith, which was cited by the Examiner for its alleged disclosure of the power control message being based on a frame error rate, fails to remedy the above deficiencies of Walton and Bae.

For at least the reasons above, Applicants believe that claim 14 is allowable over the applied references and respectfully request that the rejection of claim 14 be withdrawn.

Independent claims 21, 25 and 29 includes features similar to those of claim 14, and are believed to also be allowable over the applied references for at least the reasons given for claim 14.

The other claims currently under consideration in the application are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claims is deemed to define an addition aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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